# WATER SUPPLY OUTLOOK

## KOOTENAI RIVER BASIN

## MONTANA

*as of*

MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Mountain snow pack is below average in the Kootenai drainage. The drainage has two-thirds the snow it had last year and is 85 percent average.

Streamflow during the spring and summer is forecast 70 to 85 percent average and 75 percent of last year's runoff. Streams in the south will produce lower percentage flow than those in the north.

Lower elevation soils are well primed from recent rains and snow melt.

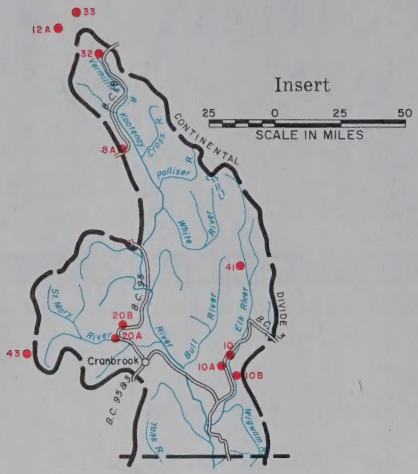
STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 3020 FISHER RIVER NEAR JENNINGS | | | | 342 | 264 | 250 | 440 | 271 | 486 | 286 | 210 | 383 | 274 | 291 | 257 | 318 | 162 | 264 | 302 | |
| STATION NO. 3030 KOOTENAI RIVER AT LIBBY | 9630 | 5952 | 8416 | 9686 | 7268 | 7359 | 10425 | 7370 | 9664 | 6855 | 6431 | 9666 | 7384 | 8688 | 6644 | 8096 | 7058 | 7820 | 8043 | |

*Report prepared by*

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

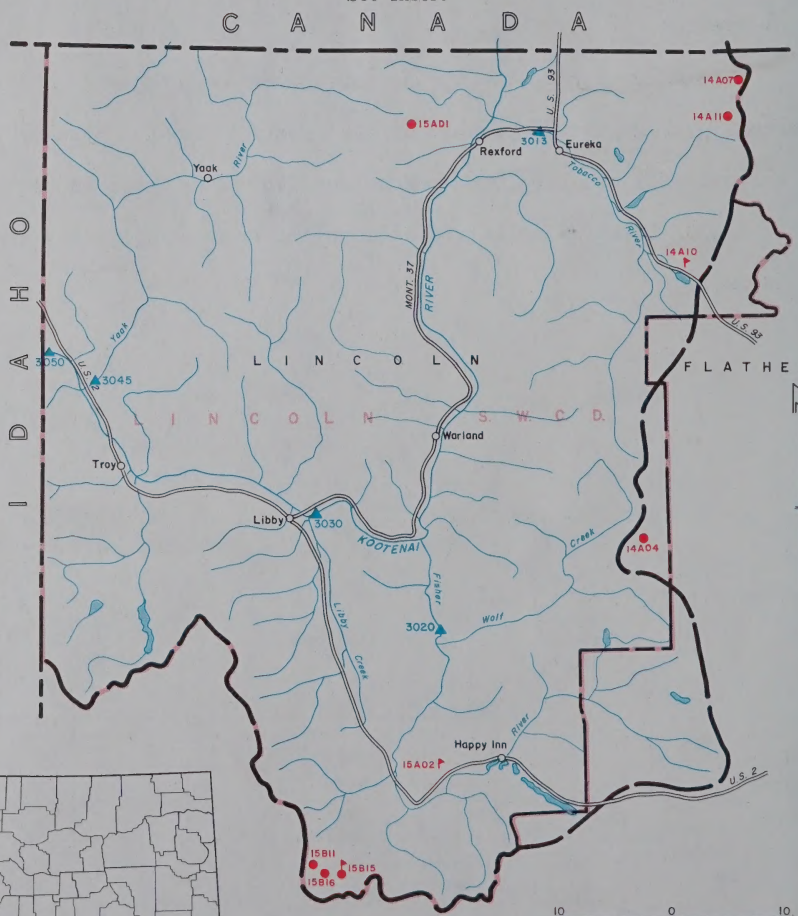
# KOOTENAI RIVER BASIN

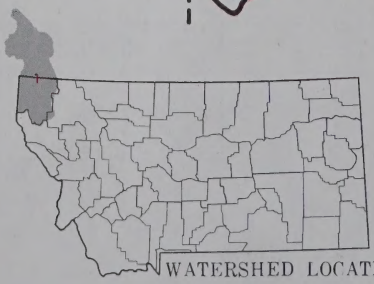



LEGEND

- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S.W.C.D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary

See Insert



# SNOW SURVEY DATA

WATERSHED 1

**AS OF** MARCH 1, 1968

(Inches)

| SNOW COURSE | | | CURRENT DATA | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | WATER CONTENT | |
| NO. | NAME | ELEVATION | | | | LAST YEAR | AVERAGE |
| 15B11 | Baree Creek | 5500 | 2/29 | 86 | 36.0 | 54.8 | - |
| 15B16 | Baree Midway | 4600 | 2/29 | 62 | 24.4 | 44.4 | - |
| 15B15 | Baree Trail | 3800 | 2/29 | 0 | 0.0 | 8.4 | - |
| 14A04 | Brush Creek | 5000 | 2/28 | 20 | 7.4 | 13.2 | 12.7* |
| BC 10 | Fernie | 3500 | 2/28 | 9 | 3.3 | 8.3 | 9.0 |
| BC 12A | Field | 4200 | 2/27 | 19 | 6.2 | 7.5 | 5.8 |
| BC 11 | Glacier | 4100 | 2/27 | 72 | 26.8 | 37.5 | 24.0 |
| 14A11 | Graves Creek | 4300 | 2/27 | 33 | 10.8 | 23.5 | - |
| BC 43 | Gray Creek | 5100 | 2/29 | 45 | 12.7 | 16.7 | 16.7* |
| BC 33 | Kicking Horse | 5400 | 2/27 | 45 | 12.3 | 16.3 | 13.3 |
| BC 20B | Kimberley | 3800 | 2/28 | 20 | 6.1 | 6.9 | 8.4 |
| BC 32 | Marble Canyon | 5000 | 2/27 | 45 | 10.1 | 17.5 | 13.5 |
| BC 10B | Morrissey Ridge | 6100 | 2/27 | 60 | 20.2 | 38.0 | - |
| BC 10A | New Fernie | 4100 | 2/28 | 28 | 10.3 | 18.1 | 13.2* |
| 15A01 | Red Mountain | 6000 | 2/26 | 43 | 13.7 | 23.9 | 18.0 |
| BC 8A | Sinclair Pass | 4500 | 2/27 | 17 | 4.1 | 8.4 | 5.8 |
| BC 20A | Sullivan Mine | 5100 | 2/29 | 40 | 12.5 | 14.1 | 13.4 |
| BC 41 | Upper Elk River | 4400 | 2/28 | 11 | 4.8 | 10.5 | 7.9 |
| 14A07 | Weasel Divide | 5450 | 2/27 | 70 | 26.2 | 44.4 | 30.4 |

# SOIL MOISTURE DATA

**AS OF** MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION | | | SOIL PROFILE | | CURRENT DATA | | PAST RECORD | |
|---|---|---|---|---|---|---|---|---|
| | | | DEPTH | FIELD CAPACITY | DATE OF SURVEY | SOIL MOISTURE | LAST YEAR | **AVERAGE |
| NO. | NAME | ELEVATION | | | | | | |
| 15B15M | Baree Trail | 3800 | 48 | 7.5 | 3/1 | 6.5 | 6.4 | - |
| 14A10M | Murphy Lake R. S. | 3000 | 48 | 22.6 | 3/4 | 21.1 | 20.8 | - |
| 15A02M | Raven R. S. | 3050 | 48 | 23.0 | 3/1 | 19.8 | 22.2 | - |

NOTE: ALL AVERAGES BASED ON 1950-1962 (13 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 1

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW | |
|---|---|---|---|---|---|---|
| | | | | | LAST YEAR* | AVERAGE |
| | FISHER RIVER | | | | | |
| 3020 | Jennings (near) | Apr-Sept | 228 | 72 | | 318 |
| | KOOTENAI RIVER | | | | | |
| 3030 | Libby (at) | Apr-Sept | 6700 | 83 | 9068 | 8096 |
| | YAAK RIVER | | | | | |
| 3045 | Troy (near) | Apr-Sept | 480 | 86 | | 555 |
| | KOOTENAI RIVER | | | | | |
| 3050 | Leonia (at) | Apr-Sept | 7550 | 81 | 10045 | 9327 |

*PROVISIONAL DATA FURNISHED BY U.S. GEOLOGICAL SURVEY

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK

## FLATHEAD RIVER BASIN

## MONTANA

*as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Mountain snow pack is well below average in the lower elevations. The higher elevations, in the southern portion of the Flathead drainage, have near average snow pack.

The entire drainage has two-thirds the snow pack of a year ago, and 87 percent average.

Streamflow is forecast 80 to 90 percent average and 75 to 80 percent of the flow last year.

Low elevation soils are well primed from recent snow melt and rains.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 3630 FLATHEAD RIVER AT COLUMBIA FALLS | 6837 | 5331 | 7749 | 7225 | 5732 | 6522 | 8267 | 5707 | 7164 | 5716 | 5053 | 8053 | 5888 | 6232 | 5978 | 6497 | 4937 | 7398 | 7418 | |
| STATION NO. 3700 SWAN RIVER NEAR BIG FORK | 841 | 514 | 807 | 686 | 619 | 604 | 676 | 570 | 750 | 575 | 568 | 997 | 724 | 707 | 771 | 694 | 533 | 706 | 844 | |

Report prepared by
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
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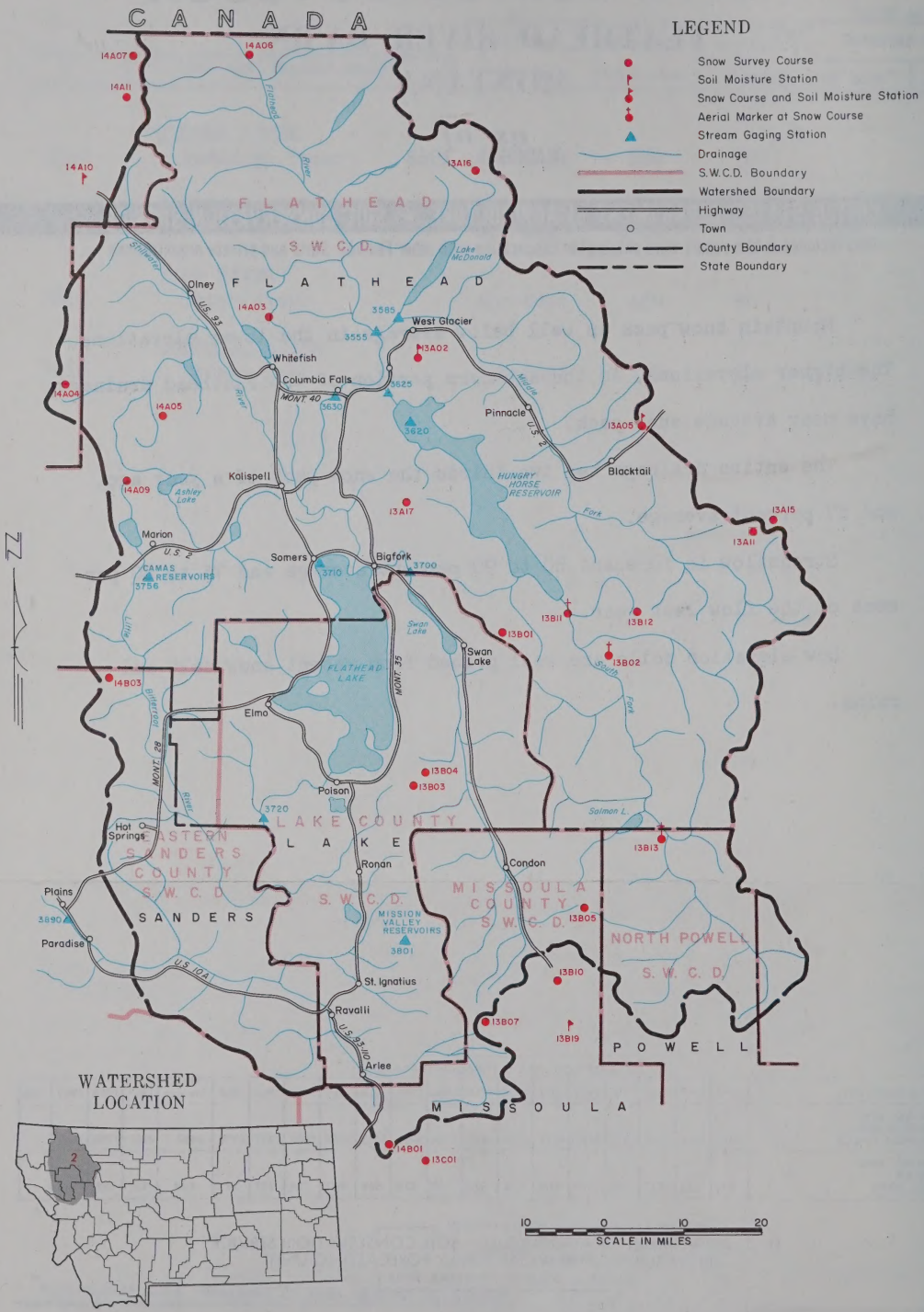
*"The Conservation of Water begins with the Snow Survey"*

# FLATHEAD LAKE RIVER BASIN



# SNOW SURVEY DATA

WATERSHED 2

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT: LAST YEAR | PAST RECORD: WATER CONTENT: AVERAGE |
|---|---|---|---|---|---|---|---|
| 13A15 | Badger Pass | 6900 | No Measurement | | | 42.5 | 31.0* |
| 14B03 | Bassoo Peak | 5150 | 2/26 | 21 | 7.4 | 11.2 | 11.1* |
| 13A11 | Beaver Lake | 5900 | 2/27 | 54 | 19.1 | 25.4 | 19.0* |
| 13B03 | Big Creek | 6750 | 2/28 | 94 | 36.2 | 48.4 | 38.5 |
| 14A04 | Brush Creek | 5000 | 2/28 | 20 | 7.4 | 13.2 | 12.7 |
| 13A17 | Camp Misery | 6400 | 2/29 | 97 | 37.3 | 59.7 | 33.0 |
| 13B10 | Coyote Hill | 4200 | 2/28 | 19 | 6.1 | 12.0 | 10.2 |
| 13A02 | Desert Mountain | 5600 | 3/1 | 39 | 12.6 | 17.8 | 14.1 |
| 13B04 | Fatty Creek | 5500 | 2/28 | 44 | 17.0 | 26.2 | 18.0 |
| BC 10 | Fernie | 3500 | 2/28 | 9 | 3.3 | 8.3 | 9.0 |
| 14A11 | Graves Creek | 4300 | 2/27 | 33 | 10.8 | 23.5 | - |
| 14A09 | Griffin Creek Divide | 5150 | 2/27 | 24 | 7.2 | 13.3 | 12.4 |
| 13B12 | Gunsight Lake | 6300 | 2/27 | 93 | 34.5 | 51.8 | 35.5* |
| 14A03 | Hell Roaring Divide | 5770 | 2/29 | 66 | 23.9 | 38.7 | 26.8 |
| 13B13 | Holbrook | 4530 | 2/29 | 18 | 6.6 | 12.9 | 10.2 |
| 14A06 | Kishenehn | 3890 | 2/28 | 19 | 6.1 | 9.8 | 9.9 |
| 14A05 | Logan Creek | 4300 | 2/28 | 18 | 6.3 | 7.9 | 8.8 |
| 13A05 | Marias Pass | 5250 | 2/27 | 34 | 12.2 | 21.3 | 17.3 |
| 13A16 | Mineral Creek | 4000 | 2/26 | 38 | 12.0 | 23.0 | 19.8 |
| BC 10B | Morrissey Ridge | 6100 | 2/27 | 60 | 20.2 | 38.0 | - |
| BC 10A | New Fernie | 4100 | 2/28 | 28 | 10.3 | 18.2 | 13.2 |
| 13B07 | North Fork Jocko | 6330 | 2/29 | 97 | 36.3 | 49.8 | 39.8 |
| 13B02 | Spotted Bear Mountain | 7000 | 2/27 | 35 | 12.2 | 19.3 | 14.6 |
| 13C01 | Stuart Mountain | 7400 | 3/2 | 78 | 30.2 | 31.2 | 26.5 |
| 13B01 | Trinkus Lake | 6100 | 2/27 | 89 | 33.8 | 48.1 | 36.3 |
| 14B01 | TV Mountain | 6800 | 3/3 | 46 | 15.5 | 16.0 | 14.9 |
| 13B11 | Twin Creeks | 3580 | 2/27 | 18 | 6.6 | 14.6 | 12.4 |
| 13B05 | Upper Holland Lake | 6200 | 2/29 | 85 | 31.4 | 39.5 | 29.8 |
| 14A07 | Weasel Divide | 5450 | 2/27 | 70 | 26.2 | 44.4 | 30.4 |

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 13A02M | Desert Mountain | 5600 | 54 | 8.4 | | | 8.0 | 7.2 |
| 12A05M | Marias Pass | 5250 | 54 | 6.5 | 3/1 | 5.6 | 5.5 | 5.3 |
| 14A10M | Murphy Lake | 3000 | 48 | 22.6 | 3/4 | 21.1 | 20.8 | - |
| 13B19M | Seeley Lake | 4030 | 48 | 11.9 | | | 10.3 | - |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 2

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | NORTH FORK FLATHEAD RIVER | | | | | |
| 3555 | Columbia Falls (near) | Apr-Sept | 1580 | 78 | 2143 | 2027 |
| | MIDDLE FORK FLATHEAD RIVER | | | | | |
| 3585 | West Glacier (near) | Apr-Sept | 1630 | 85 | 2185 | 1923 |
| | SOUTH FORK FLATHEAD RIVER | | | | | |
| 3625 | Columbia Falls (near)(7) | Apr-Sept | 2080 | 87 | 2590 | 2381 |
| | FLATHEAD RIVER | | | | | |
| 3630 | Columbia Falls (at)(7) | Apr-Sept | 5450 | 84 | 6972 | 6497 |
| | SWAN RIVER | | | | | |
| 3700 | Big Fork (near) | Apr-Sept | 612 | 88 | | 694 |
| | FLATHEAD RIVER | | | | | |
| 3720 | Polson (near)(8) | Apr-Sept | 6460 | 83 | 7687 | 7778 |

(7) Adjusted for storage in Hungry Horse Reservoir.
(8) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 3620 | Hungry Horse | 3,428.0 | 2,097.0 | 1,746.0 | 2,436.3 |
| 3710 | Flathead Lake | 1,791.0 | 1,087.0 | 1,049.0 | 845.1 |
| 3756 | Camas (4) | 45.2 | 23.5 | 26.0 | 32.2 |
| 3801 | Mission Valley (8) | 100.3 | 26.5 | 25.1 | 34.5 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK
## LOWER CLARK FORK RIVER BASIN
## MONTANA
*as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Snow pack in the headwaters of the Blackfoot and Clark Fork is 10 percent above average - same as last year. In the Bitterroot, snow pack is 15 percent less than a year ago and 95 percent average. The snow pack in the lower Clark Fork is 20 percent less than a year ago and 85 percent average.

Lower elevation soils are saturated from recent rains and snow melt.

Streams flowing into the Clark Fork are forecast about 80 percent average and will reduce the near average flow expected at Missoula to 87 percent average flow at the Idaho border.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 3405 CLARKS FORK RIVER ABOVE MISSOULA | 2470 | 1590 | 2030 | 2369 | 1782 | 1887 | 1737 | 1590 | 2012 | 1577 | 1699 | 2044 | 1452 | 1250 | 1812 | 1838 | 1427 | 2130 | 2517 | |
| STATION NO. 3895 THOMPSON RIVER NEAR THOMPSON FALLS | | | | | | | | | 428 | 276 | 177 | 366 | 268 | 290 | 250 | 302 | 175 | 232 | 312 | |

*Report prepared by*
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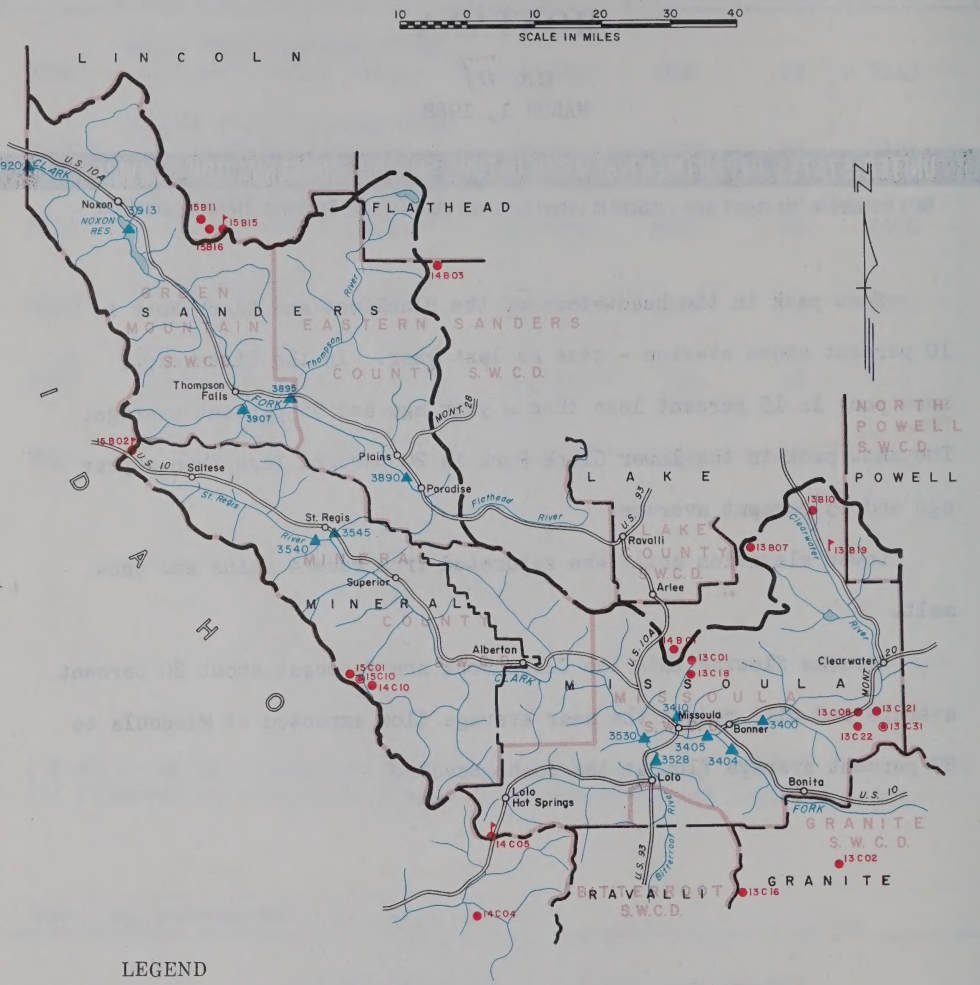
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

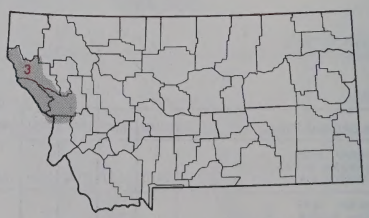
*"The Conservation of Water begins with the Snow Survey"*

# LOWER CLARK FORK RIVER BASIN




## LEGEND

- Snow Pillow
- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S.W.C.D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary




WATERSHED LOCATION

# SNOW SURVEY DATA

WATERSHED 3

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE | | | CURRENT DATA | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | WATER CONTENT | |
| NO. | NAME | ELEVATION | | | | LAST YEAR | AVERAGE |
| 13C16 | Ambrose | 6480 | 2/25 | 36 | 11.0 | 12.9 | 12.1 |
| 15B11 | Baree Creek | 5500 | 2/29 | 86 | 36.0 | 54.8 | - |
| 15B16 | Baree Midway | 4600 | 2/29 | 62 | 24.4 | 44.4 | - |
| 15B15 | Baree Trail | 3800 | 2/29 | 0 | 0.0 | 8.4 | - |
| 14B03 | Bassoo Peak | 5150 | 2/26 | 21 | 7.4 | 11.2 | 11.1 |
| 13B10 | Coyote Hill | 4200 | 2/28 | 19 | 6.1 | 12.0 | 10.2 |
| 14C10 | Heart Lake Trail | 4800 | 2/29 | 40 | 15.3 | 28.0 | - |
| 15C10 | Hoodoo Basin | 6000 | 2/29 | 110 | 41.9 | 47.3 | - |
| 15C10 | Hoodoo Basin Pillow | 6000 | 2/29 | SP | 40.6 | 46.0 | - |
| 15C01 | Hoodoo Creek | 5900 | 2/29 | 99 | 36.7 | 46.1 | 45.3 |
| 14C05 | Lolo Pass | 5230 | 2/26 | 66 | 23.6 | 31.3 | 32.2 |
| 15B02 | Lookout | 5250 | 2/28 | 70 | 26.5 | 35.6 | 34.8 |
| 13C21 | Lubrecht Forest No. 3 | 5450 | 3/3 | 16 | 5.0 | 7.0 | 7.4 |
| 13C22 | Lubrecht Forest No. 4 | 4650 | 3/3 | 6 | 1.9 | 3.0 | 3.9 |
| 13C08 | Lubrecht Forest No. 6 | 4040 | 3/3 | 2 | 0.6 | 3.8 | 4.6 |
| 13B07 | North Fork Jocko | 6330 | 2/29 | 97 | 36.3 | 49.8 | 39.8 |
| 14C04 | Savage Pass | 6600 | 2/26 | 70 | 24.0 | 26.0 | 25.0 |
| 13C02 | Slide Rock Mountain | 7100 | 2/28 | 41 | 13.4 | 12.6 | 12.6 |
| 13C18 | Spring Gulch | 6000 | 3/2 | 31 | 10.5 | 10.7 | 10.5 |
| 13C01 | Stuart Mountain | 7400 | 3/2 | 78 | 30.2 | 31.2 | 26.5 |
| 14B01 | TV Mountain | 6800 | 3/3 | 46 | 15.5 | 16.0 | 14.9 |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION | | | SOIL PROFILE | | CURRENT DATA | | PAST RECORD | |
|---|---|---|---|---|---|---|---|---|
| | | | DEPTH | FIELD CAPACITY | DATE OF SURVEY | SOIL MOISTURE | LAST YEAR | **AVERAGE |
| NO. | NAME | ELEVATION | | | | | | |
| 15B15M | Baree Trail | 3800 | 48 | 7.5 | 3/1 | 6.5 | 6.4 | - |
| 14C05M | Lolo Pass | 5250 | 48 | 10.6 | 2/28 | 10.0 | 3.8 | 5.8 |
| 13B19M | Seeley Lake | 4030 | 48 | 11.9 | | | 10.3 | - |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 3

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | BLACKFOOT RIVER | | | | | |
| 3400 | Bonner (near) | Apr-Sept | 1070 | 103 | 1167 | 1036 |
| | CLARK FORK RIVER | | | | | |
| 3404 | Milltown (above)(4) | Apr-Sept | 900 | 112 | 879 | 802 |
| | CLARK FORK RIVER | | | | | |
| 3405 | Missoula (above) | Apr-Sept | 1970 | 107 | 2061 | 1838 |
| | RATTLESNAKE CREEK | | | | | |
| 3410 | Missoula (at) | Apr-Sept | 72.2 | 106 | 68.2 | 68.2 |
| | BITTERROOT RIVER | | | | | |
| 3528 | Missoula (at)(6) | Apr-Sept | 1525 | 98 | | 1553 |
| | CLARK FORK RIVER | | | | | |
| 3530 | Missoula (below) | Apr-Sept | 3495 | 103 | | 3391 |
| | ST. REGIS RIVER | | | | | |
| 3540 | St. Regis (near) | Apr-Sept | 283 | 78 | | 363 |
| | CLARK FORK RIVER | | | | | |
| 3545 | St. Regis (at) | Apr-Sept | 4500 | 97 | 4758 | 4642 |
| | CLARK FORK RIVER | | | | | |
| 3890 | Plains (near)(8) | Apr-Sept | 11,260 | 88 | 12,838 | 12,793 |
| | THOMPSON RIVER | | | | | |
| 3895 | Thompson Falls (near) | Apr-Sept | 236 | 78 | | 302 |
| | PROSPECT CREEK | | | | | |
| 3907 | Thompson Falls (at) | Apr-Sept | 165 | 80 | | 165 |
| | CLARK FORK RIVER | | | | | |
| 3920 | Whitehorse Rapids (at)(9) | Apr-Sept | 12,560 | 87 | | 14,398 |

(4) Difference in observed flow Clark Fork above Missoula & Blackfoot near Bonner.
(6) Difference in observed flow Clark Fork above and below Missoula.
(8) Adjusted for storage in Flathead Lake and Hungry Horse Reservoir.
(9) Adjusted for storage in Flathead Lake, Hungry Horse and Noxon Reservoirs.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 3913 | Noxon Rapids | 334.6 | 324.0 | 267.0 | - |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK
## UPPER CLARK FORK RIVER BASIN
## MONTANA

*as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation water is expected to be average. The high elevation snow pack is above average and dense. Soils under the snow are wetter than usual and low elevation soils are well primed from recent rains and snow melt.

The snow pack over the entire area is the same as last year and 10 percent above average.

Streamflow through the spring and summer is expected to average near to above average and generally a little less than last year on the Blackfoot and a little more than last year on the upper Clark Fork drainages.

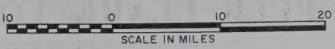
STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 3404 CLARKS FORK RIVER ABOVE MILLTOWN | 1428 | 778 | 900 | 1073 | 833 | 806 | 611 | 739 | 880 | 655 | 790 | 706 | 634 | 475 | 722 | 802 | 708 | 1025 | 1149 | |
| STATION NO. 3400 BLACKFOOT RIVER NEAR BONNER | 1312 | 812 | 1130 | 1295 | 948 | 1080 | 1126 | 851 | 1132 | 922 | 909 | 1338 | 818 | 775 | 1089 | 1036 | 719 | 1105 | 1368 | |

*Report prepared by*
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# UPPER CLARK FORK RIVER BASIN

WATERSHED LOCATION



LEGEND

# SNOW SURVEY DATA

WATERSHED 4

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT: LAST YEAR | PAST RECORD: WATER CONTENT: AVERAGE |
|---|---|---|---|---|---|---|---|
| 13C16 | Ambrose | 6480 | 2/25 | 36 | 11.0 | 12.9 | 12.1 |
| 13C13 | Black Pine | 7100 | 2/29 | 41 | 13.0 | 14.8 | 11.3 |
| 13C13 | Black Pine Pillow | 7100 | 2/29 | SP | 13.4 | 13.9 | - |
| 12C05 | Chessman Reservoir | 6200 | 2/28 | 16 | 5.8 | 4.5 | 4.0 |
| 12B10 | Copper Creek | 5700 | 3/1 | 29 | 9.8 | 20.0 | 13.8* |
| 12C09 | Copper Mountain | 7700 | 2/29 | 42 | 11.4 | 10.3 | - |
| 12B11 | Cotter Mine | 6250 | 3/1 | 34 | 10.8 | 22.4 | 15.3* |
| 13C09 | El Dorado Mine | 7800 | 3/1 | 62 | 20.9 | 19.2 | 17.6 |
| 13C11 | Fred Burr Pass | 8000 | 2/29 | 77 | 26.4 | 24.7 | 23.8 |
| 13C10 | Gold Creek Lake | 7200 | 3/1 | 44 | 14.2 | 14.3 | 13.4 |
| 13C04 | Intergaard | 6450 | 3/1 | 26 | 8.3 | 8.6 | 7.2 |
| 13C21 | Lubrecht Forest No. 3 | 5450 | 3/3 | 16 | 5.0 | 7.0 | 7.4 |
| 13C22 | Lubrecht Forest No. 4 | 4650 | 3/3 | 6 | 1.9 | 3.0 | 3.9 |
| 13C08 | Lubrecht Forest No. 6 | 4040 | 3/3 | 2 | 0.6 | 3.8 | 4.6 |
| 12C10 | Nez Perce Creek | 6500 | 2/29 | 24 | 6.7 | 7.2 | - |
| 13D23 | Palisade Creek | 8450 | No measurement | | | - | - |
| 12D01 | Pipestone Pass | 7200 | 2/28 | 19 | 4.6 | 5.0 | 4.5 |
| 13C12 | Red Lion | 7100 | 2/29 | 56 | 17.6 | 15.0 | 13.8 |
| 12C11 | Rocker Peak | 8000 | 3/1 | 48 | 15.1 | - | - |
| 12C11 | Rocker Peak Pillow | 8000 | 3/1 | SP | 14.6 | - | - |
| 13C03 | Skalkaho Summit | 7260 | 2/27 | 77 | 25.2 | 27.2 | 22.5 |
| 13C02 | Slide Rock Mountain | 7100 | 2/28 | 41 | 13.4 | 12.6 | 12.6 |
| 13C05 | Southern Cross | 6500 | 3/1 | 19 | 6.8 | 8.2 | 5.6 |
| 12C01 | Stemple Pass | 6600 | 2/29 | 28 | 8.9 | 12.6 | 9.2 |
| 13C07 | Storm Lake | 7780 | 2/26 | 49 | 14.3 | 12.5 | 11.7 |
| 13C06 | Stuart Mill | 6500 | 3/1 | 22 | 7.4 | 7.2 | 5.9 |
| 12C02 | Ten Mile Lower | 6600 | 2/27 | 25 | 8.2 | 7.3 | 6.3 |
| 12C03 | Ten Mile Middle | 6800 | 2/26 | 36 | 11.0 | 10.3 | 9.1 |
| 12C04 | Ten Mile Upper | 8000 | 2/26 | 45 | 15.1 | 12.8 | 11.7 |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 13C13M | Black Pine | 7100 | 48 | 10.0 | 2/29 | 8.1 | 8.0 | - |
| 13C03M | Skalkaho Summit | 7260 | 48 | 10.8 | 2/27 | 9.9 | 9.9 | - |
| 12C08M | Stemple Pass | 6350 | 48 | 5.9 | 2/28 | 4.3 | 4.0 | 4.1 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 4

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | GERMAN GULCH | | | | | |
| 3235 | Ramsay (near) | Apr-Sept | 14.3 | 114 | 18.9 | 12.5 |
| | RACETRACK CREEK | | | | | |
| 3241 | Anaconda (near) | Apr-Sept | 40.5 | 106 | 37.4 | 38.0 |
| | FLINT CREEK | | | | | |
| 3301 | Boulder Creek (below)(3) | Apr-Sept | 81.5 | 111 | 74.3 | 73.0 |
| | MIDDLE FORK ROCK CREEK | | | | | |
| 3320 | Philipsburg (near) | Apr-Sept | 89.5 | 115 | | 77.8 |
| | NEVADA CREEK | | | | | |
| 3355 | Finn (near) | Apr-Sept | 21.5 | 94 | | 22.8 |
| | BLACKFOOT RIVER | | | | | |
| 3400 | Bonner (near) | Apr-Sept | 1070 | 103 | 1167 | 1036 |
| | CLARK FORK RIVER | | | | | |
| 3404 | Milltown (above )(4) | Apr-Sept | 900 | 112 | 879 | 802 |

(3) Sum Flint Creek at Maxville and Boulder Creek at Maxville.
(4) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 3250 | Georgetown Lake | 31.0 | 26.8 | 20.0 | 23.2 |
| 3360 | Nevada Creek | 12.6 | 7.3 | - | 5.0 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK

## BITTERROOT RIVER BASIN

## MONTANA

*as of*

MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation water supplies are expected to be near to a little below average. The snow pack is 15 percent less than a year ago and 95 percent average. The snow is dense. Soils under the snow are wetter than usual. Low elevation soils are well primed from recent rains and snow melt.

Streamflow during the spring and summer is forecast to average near to a little below average and a little less than last year.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION 3440 BITTERROOT RIVER NEAR DARBY | 765 | 605 | 630 | 663 | 608 | 557 | 523 | 540 | 740 | 515 | 531 | 593 | 521 | 398 | 545 | 582 | 534 | 783 | 740 | |
| STATION NO. 3475 BLODGETT CREEK NEAR CORVALLIS | 51.3 | 45 | 51 | 46 | 42 | 40 | 52 | 45 | 51 | 42 | 42 | 47 | 36 | 39 | 41 | 45 | 35 | 48 | 55 | |

Report prepared by

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# BITTERROOT RIVER BASIN

# SNOW SURVEY DATA

WATERSHED 5

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT: LAST YEAR | PAST RECORD: WATER CONTENT: AVERAGE |
|---|---|---|---|---|---|---|---|
| 13C16 | Ambrose | 6480 | 2/25 | 36 | 11.0 | 12.9 | 12.1* |
| 13D01 | East Fork R. S. | 5400 | 3/1 | 19 | 6.4 | 6.5 | 7.1* |
| 13D02 | Gibbons Pass | 7100 | 2/27 | 71 | 21.1 | 21.2 | 21.0 |
| 14D03 | Kit Carson | 5020 | No measurement | | | | |
| 14C05 | Lolo Pass | 5230 | 2/26 | 66 | 23.6 | 31.3 | 32.2 |
| 14C07 | Lost Horse | 5940 | 2/26 | 72 | 25.8 | 31.6 | 30.3 |
| 13D16 | Moose Creek | 6200 | 2/26 | 47 | 13.4 | 16.0 | 14.9 |
| 14D02 | Nez Perce Camp | 5680 | 2/27 | 32 | 9.1 | 16.5 | 12.8 |
| 14D01 | Nez Perce Pass | 6570 | 2/27 | 44 | 14.8 | 16.8 | 14.8 |
| 13D23 | Palisade Creek | 8450 | No measurement | | | | |
| 13D22 | Saddle Mountain | 7940 | 3/1 | 77 | 24.5 | 24.2 | - |
| 13D22 | Saddle Mountain Pillow | 7940 | 3/1 | SP | 24.5 | - | - |
| 14C04 | Savage Pass | 6600 | 2/26 | 70 | 24.0 | 26.0 | 25.0 |
| 13C03 | Skalkaho Summit | 7260 | 2/27 | 77 | 25.2 | 33.1 | 22.5* |
| 14C13 | Twelvemile Creek | 5600 | 2/26 | 44 | 15.7 | - | - |
| 14C13 | Twelvemile Creek Pillow | 5600 | 2/26 | SP | 22.3 | - | - |
| 14C08 | Twin Lakes | 6510 | 2/26 | 107 | 37.0 | 39.8 | 39.5* |
| 14C12 | Twin Lakes Pillow | 6400 | 2/26 | SP | 34.3 | - | - |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 13D18M | Gibbons Pass | 7100 | 48 | 7.1 | 3/1 | 5.5 | 4.8 | 5.3 |
| 14C05M | Lolo Pass | 5250 | 48 | 10.6 | 2/28 | 10.0 | 3.8 | 5.8 |
| 13C03M | Skalkaho Summit | 7260 | 48 | 10.8 | 2/27 | 9.9 | 9.9 | - |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 5

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | WEST FORK BITTERROOT RIVER | | | | | |
| 3425 | Conner (near)(5) | Apr-Sept | 176 | 98 | | 179 |
| | EAST FORK BITTERROOT RIVER | | | | | |
| 3434 | Conner (near) | Apr-Sept | 165 | 98 | | 169 |
| | BITTERROOT RIVER | | | | | |
| 3440 | Darby (near) | Apr-Sept | 560 | 96 | 575 | 582 |
| | SKALKAHO CREEK | | | | | |
| 3465 | Hamilton (near) | Apr-Sept | 61.0 | 101 | | 60.6 |
| | BLODGETT CREEK | | | | | |
| 3475 | Corvallis (near) | Apr-Sept | 43.2 | 97 | 41.0 | 44.6 |
| | BITTERROOT RIVER | | | | | |
| 3528 | Missoula (at)(6) | Apr-Sept | 1525 | 98 | | 1553 |

(5) Adjusted for storage in Painted Rocks Reservoir.
(6) Difference in observed flow Clark Fork above and below Missoula.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 3420 | Painted Rocks | 31.7 | 22.1 | 15.1 | 13.5 |
| 3445 | Como | 34.9 | 18.2 | 10.0 | 11.8 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK
## MARIAS, TETON and SUN RIVER BASINS
## MONTANA
## *as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation supplies from natural streamflow are expected to be below average.

The mountain snow pack is two-thirds of last year and 80 percent average. The snow pack is dense. Moisture in soils under the snow is about average - except drier than normal in the higher elevations.

Streamflow during the spring and summer is forecast to average 65 to 70 percent of last year and about 20 percent less than average.

Reservoir storage is below average but supplies should be adequate for filling.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 9786 SUN RIVER AT GIBSON DAM | 741 | 411 | 712 | 752 | 499 | 738 | 748 | 517 | 669 | 531 | 555 | 749 | 436 | 474 | 616 | 610 | 387 | 737 | 702 | |
| STATION NO. 0995 MARIAS RIVER NEAR SHELBY | 1132 | 340 | 950 | 1013 | 457 | 928 | 782 | 600 | 683 | 510 | 483 | 698 | 405 | 380 | 398 | 651 | 280 | 937 | 751 | |

*Report prepared by*
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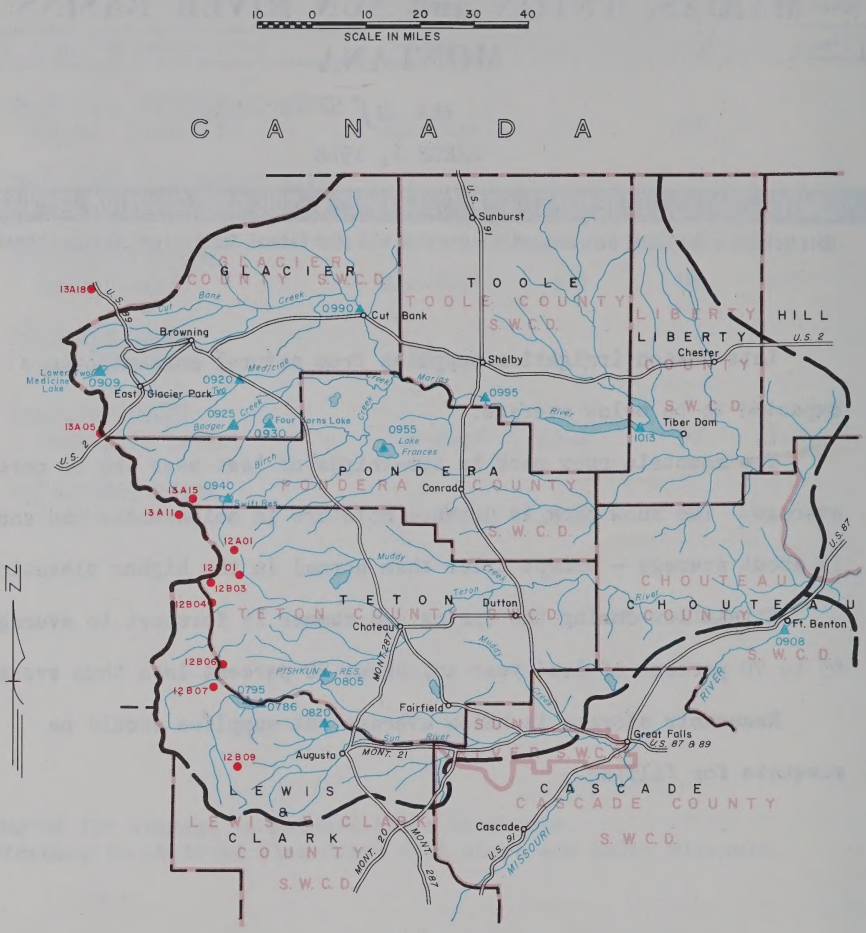
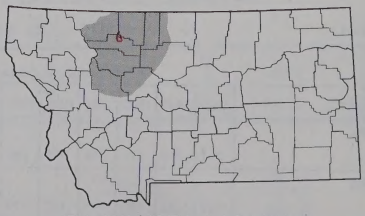
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# MARIAS, TETON and SUN RIVER BASINS




## LEGEND

- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S.W.C.D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary



WATERSHED LOCATION

# SNOW SURVEY DATA

WATERSHED 6

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE | | | CURRENT DATA | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | WATER CONTENT | |
| NO. | NAME | ELEVATION | | | | LAST YEAR | AVERAGE |
| 13A15 | Badger Pass | 6900 | No measurement | | | 42.5 | 31.0* |
| 13A11 | Beaver Lake | 5900 | 2/27 | 54 | 19.1 | 28.7 | 19.0* |
| 12B06 | Cabin Creek | 5200 | 2/29 | 18 | 6.6 | 12.4 | 6.8* |
| 12B09 | Five-Bull | 5700 | 2/29 | 18 | 6.2 | 9.2 | 6.1* |
| 12A01 | Freight Creek | 6000 | 2/29 | 32 | 12.0 | 18.8 | 14.5 |
| 12B07 | Goat Mountain | 7000 | 2/29 | 27 | 8.0 | 12.0 | 10.6 |
| 13A18 | Hudson Bay Divide | 5800 | 2/28 | 42 | 15.2 | 20.9 | 16.8* |
| 13A05 | Marias Pass | 5250 | 2/27 | 34 | 12.2 | 21.3 | 17.3 |
| 13A16 | Mineral Creek | 4000 | 2/26 | 38 | 12.0 | 20.3 | 19.8 |
| 12B04 | Wrong Creek | 5700 | 3/2 | 32 | 11.2 | 20.0 | 14.5 |
| 12B03 | Wrong Ridge | 6800 | 3/2 | 46 | 15.7 | 25.7 | 19.6 |

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION | | | SOIL PROFILE | | CURRENT DATA | | PAST RECORD | |
|---|---|---|---|---|---|---|---|---|
| | | | DEPTH | FIELD CAPACITY | DATE OF SURVEY | SOIL MOISTURE | | |
| NO. | NAME | ELEVATION | | | | | LAST YEAR | **AVERAGE |
| 13A05M | Marias Pass | 5250 | 54 | 6.5 | 3/1 | 5.6 | 5.5 | 5.3 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 6

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | SUN RIVER | | | | | |
| 0786 | Gibson Dam (at)(18) | Apr-Sept | 520 | 85 | 747 | 610 |
| | MISSOURI RIVER | | | | | |
| 0908 | Fort Benton (at)(17) | Apr-Sept | 3790 | 114 | | 3319 |
| | TWO MEDICINE CREEK | | | | | |
| 0920 | Browning (near)(19) | Apr-Sept | 220 | 81 | 323 | 271 |
| | BADGER CREEK | | | | | |
| 0925 | Browning (near) | Apr-Sept | 116 | 81 | | 143 |
| | CUT BANK CREEK | | | | | |
| 0990 | Cut Bank (at) | Apr-Sept | 100 | 76 | | 131 |
| | MARIAS RIVER | | | | | |
| 0995 | Shelby (near)(20) | Apr-Sept | 500 | 77 | 791 | 651 |

(17) Adjusted for storage in Canyon Ferry Reservoir.
(18) Adjusted for storage in Gibson Reservoir and diversions.
(19) Adjusted for storage in Two Medicine Reservoir and diversions into Two Medicin canal.
(20) Adjusted for storage in Two Medicine, Four Horns, Lake Frances and Swift Reservoirs.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 0795 | Gibson | 105.0 | 35.1 | 21.9 | 58.5 |
| 0805 | Pishkun | 32.0 | 16.6 | 16.0 | 18.4 |
| 0820 | Willow Creek | 32.3 | 12.2 | 16.4 | 19.6 |
| 0930 | Four Horns | 20.0 | | 11.8 | 10.5 |
| 0940 | Swift | 30.0 | 12.7 | - | 22.0 |
| 0955 | Lake Frances | 112.0 | 70.7 | - | 91.8 |
| 1013 | Tiber | 1,347.0 | 431.5 | 466.4 | 629.4 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK
## MISSOURI RIVER (MAIN STEM) BASIN
## MONTANA
### *as of*
### MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation water supplies from natural streamflow is expected to be a little above average. The snow pack is dense. The snow pack average is about the same as a year ago and 125 percent average.

Moisture in the soil under the snow is near average.

Streamflow during the spring and summer is forecast to average less than a year ago but well above average - except in the Sun and Dearborn drainages.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 0615 PRICKLY PEAR CREEK NEAR CLANCY | 42 | 22 | 27 | 26 | 22 | 27 | 16 | 22 | 16 | 15 | 24 | 18 | 19 | 10 | 23 | 22 | 19 | 36 | 26 | |
| STATION NO. 0770 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS | 24 | 16 | 17 | 18 | 18 | 25 | 13 | 18 | 12 | 15 | 11 | 20 | 14 | 10 | 17 | 17 | 17 | 27 | 32 | |
| STATION NO. 0545 MISSOURI RIVER AT TOSTON | 3475 | 2512 | 2220 | 2319 | 2895 | 2139 | 1561 | 1730 | 2345 | 2187 | 1971 | 1991 | 1774 | 1102 | 2347 | 2147 | 2199 | 2710 | 3432 | |

*Report prepared by*
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# MISSOURI RIVER (MAIN STEM) BASIN

# SNOW SURVEY DATA

WATERSHED 7

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT: LAST YEAR | PAST RECORD: WATER CONTENT: AVERAGE |
|---|---|---|---|---|---|---|---|
| 11C01 | Boulder Mountain | 7950 | 2/27 | 56 | 17.5 | 17.8 | 12.5* |
| 12C05 | Chessman Reservoir | 6200 | 2/28 | 16 | 5.8 | 4.5 | 4.0 |
| 10C09 | Deadman Creek | 6450 | 2/29 | 39 | 10.8 | 14.0 | - |
| 10C09 | Deadman Creek Pillow | 6450 | 2/29 | SP | 10.4 | - | - |
| 10C07 | Elk Peak | 8000 | 2/28 | 52 | 15.8 | 18.8 | 13.3* |
| 10C02 | Grasshopper | 7000 | 2/28 | 24 | 6.6 | 4.2 | 4.3 |
| 10C01 | Kings Hill | 7500 | 2/26 | 47 | 14.0 | 16.0 | 11.0 |
| 12C11 | Rocker Peak | 8000 | 3/1 | 48 | 15.1 | - | - |
| 12C11 | Rocker Peak Pillow | 8000 | 3/1 | SP | 14.6 | - | - |
| 10C06 | Spur Park | 8000 | 2/29 | 63 | 20.2 | 22.8 | 16.0* |
| 10C06 | Spur Park Pillow | 8000 | 2/29 | SP | 20.4 | 24.8 | - |
| 12C01 | Stemple Pass | 6600 | 2/29 | 28 | 8.9 | 12.6 | 9.2 |
| 12C02 | Ten Mile Lower | 6600 | 2/27 | 25 | 8.2 | 7.3 | 6.3 |
| 12C03 | Ten Mile Middle | 6800 | 2/26 | 36 | 11.0 | 10.3 | 9.1 |
| 12C04 | Ten Mile Upper | 8000 | 2/26 | 45 | 15.1 | 12.8 | 11.7 |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 10C01M | Kings Hill | 7420 | 48 | 11.8 | 2/29 | 6.2 | 4.9 | 7.3 |
| 12C08M | Stemple Pass | 6350 | 48 | 5.9 | 2/28 | 4.3 | 4.0 | 4.1 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 7

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW | |
|---|---|---|---|---|---|---|
| | | | | | LAST YEAR* | AVERAGE |
| | MISSOURI RIVER | | | | | |
| 0545 | Toston (at)(16) | Apr-Sept | 2640 | 123 | | 2147 |
| | PRICKLY PEAR CREEK | | | | | |
| 0615 | Clancy (near) | Apr-Sept | 28.3 | 129 | | 22.0 |
| | DEARBORN RIVER | | | | | |
| 0735 | Craig (near) | Apr-Sept | 125 | 90 | | 138 |
| | SHEEP CREEK | | | | | |
| 0770 | W. Sulphur Springs (near) | Apr-Sept | 26.0 | 158 | 28.1 | 16.5 |
| | SMITH RIVER | | | | | |
| 0775 | Eden (near) | Apr-Sept | 230 | 149 | | 154 |
| | SUN RIVER | | | | | |
| 0786 | Gibson Dam (at)(17) | Apr-Sept | 520 | 85 | 747 | 610 |
| | BELT CREEK | | | | | |
| 0905 | Monarch (near) | Apr-Sept | 140 | 151 | | 92.5 |
| | MISSOURI RIVER | | | | | |
| 0908 | Fort Benton (at)(18) | Apr-Sept | 3790 | 114 | | 3319 |

(16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.
(17) Adjusted for storage in Gibson Reservoir and diversions.
(18) Adjusted for storage in Canyon Ferry Reservoir.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 0585 | Canyon Ferry | 2,043.0 | 1,663.0 | 1,166.0 | 1,514.9 |
| 0645 | Lake Helena | 10.4 | 10.2 | 10.4 | 7.8 |
| 0650 | Hauser Lk. & Lk. Helena | 61.9 | 61.3 | 61.9 | 53.9 |
| 0660 | Holter Lake | 81.9 | 80.3 | 81.1 | 50.7 |
| 0750 | Smith River | 10.7 | 8.9 | - | 5.6 |
| 0795 | Gibson | 105.0 | 35.1 | 21.9 | 58.5 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK

## JEFFERSON RIVER and TRIBUTARY BASINS

## MONTANA

*as of*

MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation water from natural streams is expected to be near to a little above average. The snow pack is dense.

Moisture in the soils under the snow is near average.

Snow pack over the Big Hole-Boulder area is about the same as a year ago and 115 percent average. In the Beaverhead-Ruby area it is 10 percent more than a year ago and 135 percent average.

Streamflow during the spring and summer months is forecast to average less than last year and above average.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 0215 RED ROCK RIVER NEAR MONIDA | 81 | 78 | 100 | 70 | 127 | 81 | 58 | 71 | 60 | 105 | 93 | 54 | 55 | 36 | 110 | 78 | 60 | 110 | 136 | |
| STATION NO. 0255 BIG HOLE RIVER NEAR MELROSE | 1159 | 749 | 778 | 861 | 808 | 745 | 541 | 592 | 842 | 720 | 714 | 645 | 556 | 397 | 671 | 718 | 681 | 849 | 1166 | |
| STATION NO. 0330 BOULDER RIVER NEAR BOULDER | 136 | 65 | 81 | 92 | 85 | 84 | 49 | 73 | 76 | 67 | 82 | 68 | 73 | 46 | 70 | 76 | 81 | 108 | 139 | |

*Report prepared by*

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# JEFFERSON RIVER and TRIBUTARY BASINS

WATERSHED LOCATION

LEGEND

- Snow Pillow
- Precipitation Gage
- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S.W.C.D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary

# SNOW SURVEY DATA

WATERSHED 8

**AS OF** MARCH 1, 1968

(Inches)

| SNOW COURSE | | | CURRENT DATA | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | | | | WATER CONTENT | |
| NO. | NAME | ELEVATION | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE |
| Beaverhead - Ruby Drainage | | | | | | | |
| 11E11 | Blue Ledge Mine | 6700 | No measurement | | | - | - |
| 11D14 | Branham Lakes | 8850 | 2/24 | 84 | 29.6 | 26.0 | - |
| 11D07 | Call Road | 8050 | 2/28 | 39 | 11.4 | 10.0 | 8.0* |
| 12D04 | Carter Creek | 7400 | | | | - | 4.0* |
| 11D08 | Clover Meadow | 8600 | 2/28 | 57 | 18.2 | 14.0 | 12.0* |
| 13E22 | Dad Creek Lake | 8400 | 2/27 | 45 | 12.2 | 12.1 | 10.0* |
| 12E07 | Divide | 7900 | 2/28 | 35 | 9.0 | 9.8 | 8.0* |
| 11E12 | Kilgore | 6200 | 2/27 | 33 | 10.5 | 10.0 | 8.8 |
| 11E04 | Lakeview Canyon | 6930 | 3/4 | 35 | 11.9 | 13.0 | 9.6 |
| 11E03 | Lakeview Ridge | 7400 | 3/4 | 31 | 9.9 | 11.8 | 8.1 |
| 13E01 | Lemhi Pass | 7480 | 2/27 | 35 | 9.8 | 7.2 | 7.1 |
| 13E23 | Lemhi Ridge | 8100 | 2/27 | 35 | 9.2 | 8.0 | - |
| 11E28 | Lion Mountain | 8760 | 2/27 | 59 | 16.8 | 16.0 | - |
| 11D15 | Middle Mill Creek | 7850 | 2/24 | 53 | 15.0 | 11.0 | - |
| 12E06 | Notch | 8500 | 2/28 | 48 | 15.1 | 11.9 | 10.2* |
| 11E32 | Sawtell Mountain | 9100 | 2/28 | 78 | 27.1 | - | - |
| 13D24 | Slag-A-Melt Lake | 8750 | 2/28 | 71 | 22.0 | - | - |
| 12D05 | Smuggler Mine | 6960 | 2/24 | 36 | 9.4 | - | - |
| 13E02 | Trail Creek | 7090 | 2/27 | 31 | 8.0 | 7.1 | 6.4 |
| 11E27 | Upper West Fork | 8750 | No measurement | | | 14.4 | - |
| 12E01 | White Pine Ridge | 8850 | 2/27 | 26 | 6.4 | 3.4 | 4.4 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

# WATER SUPPLY FORECASTS

WATERSHED 8

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | RED ROCK RIVER | | | | | |
| 0125 | Monida (near)(11) | Apr-Sept | 86.5 | 110 | 110 | 78.4 |
| | BEAVERHEAD RIVER | | | | | |
| 0154 | Armstead (near)(11)(12) | Apr-Sept | 116 | 105 | 142 | 111 |
| | RUBY RIVER | | | | | |
| 0195 | Alder (near) | Apr-Sept | 95.0 | 119 | | 79.6 |
| | BIG HOLE RIVER | | | | | |
| 0255 | Melrose (near) | Apr-Sept | 820 | 114 | | 718 |
| | BIRCH CREEK | | | | | |
| 0260 | Glen (near) | Apr-Sept | 14.9 | 121 | 18.4 | 12.3 |
| | BOULDER RIVER | | | | | |
| 0330 | Boulder (near) | Apr-Sept | 96.0 | 126 | | 76.3 |
| | JEFFERSON RIVER | | | | | |
| 0345 | Sappington (at)(12) | Apr-Sept | 1150 | 118 | | 974 |

(11) Adjusted for storage in Lima Reservoir.
(12) Adjusted for storage in Clark Canyon Reservoir.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 0120 | Lima | 84.0 | 42.5 | 14.0 | 26.1 |
| 0153 | Clark Canyon | 328.9 | 158.5 | 107.9 | - |
| 0205 | Ruby | 38.8 | | - | 23.0 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# SNOW SURVEY DATA

**AS OF** MARCH 1, 1968

WATERSHED 8 (Cont.)

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT LAST YEAR | PAST RECORD: WATER CONTENT AVERAGE |
|---|---|---|---|---|---|---|---|
| **Big Hole - Boulder** | | | | | | | |
| 13D20 | Abundance Lake | 8800 | 2/27 | 63 | 18.8 | 17.0 | 16.1* |
| 12C07 | Berry Meadow | 7300 | 3/1 | 27 | 7.6 | 9.0 | 6.5* |
| 13D10 | Bloody Dick | 7600 | 2/26 | 40 | 10.0 | 10.6 | 9.6 |
| 12C05 | Chessman Reservoir | 6200 | 2/28 | 16 | 5.8 | 4.5 | 4.0 |
| 12C09 | Copper Mountain | 7700 | 2/29 | 42 | 11.4 | 10.3 | - |
| 13D19 | Darkhorse Lake | 8600 | 2/28 | 76 | 25.2 | 23.8 | 22.5* |
| 13D15 | Elk Horn Springs | 7800 | 2/27 | 38 | 9.1 | 8.1 | 8.8 |
| 13D21 | Foolhen | 8280 | 2/27 | 58 | 18.6 | 15.4 | 14.0* |
| 13D02 | Gibbons Pass | 7100 | 2/27 | 71 | 21.1 | 21.2 | 21.0 |
| 13D09 | Gold Stone | 8100 | 2/26 | 53 | 14.2 | 13.8 | 12.4 |
| 13D08 | Jahnke Creek | 7340 | 2/26 | 32 | 8.3 | 8.9 | 8.8 |
| 12C10 | Nez Perce Creek | 6500 | 2/29 | 24 | 6.7 | 7.2 | - |
| 13D23 | Palisade Creek | 8450 | No measurement | | | | |
| 12C06 | Picnic Grounds | 6500 | 3/1 | 16 | 4.4 | 5.0 | 4.2 |
| 12D01 | Pipestone Pass | 7200 | 2/28 | 19 | 4.6 | 5.0 | 4.5 |
| 12C11 | Rocker Peak | 8000 | 3/1 | 48 | 15.1 | - | - |
| 12C11 | Rocker Peak Pillow | 8000 | 3/1 | SP | 14.6 | - | - |
| 13D22 | Saddle Mountain | 7900 | 3/1 | 77 | 24.5 | 24.2 | - |
| 13D22 | Saddle Mountain Pillow | 7900 | 3/1 | SP | 24.5 | - | - |
| 13C07 | Storm Lake | 7780 | 2/26 | 49 | 14.3 | 12.5 | 11.7 |
| 12C02 | Ten Mile Lower | 6600 | 2/27 | 25 | 8.2 | 7.3 | 6.3 |
| 12C03 | Ten Mile Middle | 6800 | 2/26 | 36 | 11.0 | 10.3 | 9.1 |
| 12C04 | Ten Mile Upper | 8000 | 2/26 | 45 | 15.1 | 12.8 | 11.7 |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

**AS OF** MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 13D18M | Gibbons Pass | 7100 | 48 | 7.1 | 3/1 | 5.5 | 4.8 | 5.3 |
| 11E13M | Lakeview | 6700 | 48 | 15.3 | 3/1 | 6.8 | 6.5 | 8.4 |

NOTE: ALL AVERAGES BASED ON 1940-1962 (18 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY OUTLOOK

## MADISON and GALLATIN RIVER BASINS

## MONTANA

*as of*

MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation water supplies from natural streamflow is expected to be above average. The snow is dense and above average in the higher elevations. Moisture in the soil under the snow is near or above average. Water measured in the snow south of Bozeman in the Hyalite drainage is near the highest on record for this date, with records beginning in 1934. Snow is also well above average in the Bridger, Gravelly and Tobacco Root Ranges. Over the entire Madison drainage, snow is five percent less than a year ago and 110 percent average. In the Gallatin it is 15 percent more than a year ago and 145 percent average.

Streamflow during the spring and summer months is forecast to average below last year on the Madison streams and near to more than last year on the Gallatin streams. All streams are forecast above average.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 0385 MADISON RIVER NEAR GRAYLING | 406 | 424 | 444 | 468 | 563 | 434 | 420 | 345 | 489 | 454 | 359 | 366 | 327 | 329 | 468 | 420 | 430 | 474 | 577 | |
| STATION NO. 0435 GALLATIN RIVER NEAR GALLATIN GATEWAY | 566 | 393 | 454 | 399 | 596 | 404 | 365 | 350 | 499 | 469 | 384 | 507 | 416 | 331 | 577 | 447 | 455 | 551 | 649 | |
| STATION NO. 0485 BRIDGER CREEK NEAR BOZEMAN | 42 | 12 | 19 | 19 | 28 | 27 | 12 | 17 | 19 | 14 | 15 | 24 | 21 | 9 | 21 | 20 | 28 | 24 | 31 | |

*Report prepared by*

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

*"The Conservation of Water begins with the Snow Survey"*

# MADISON and GALLATIN RIVER BASINS

# SNOW SURVEY DATA

WATERSHED 9

**AS OF** MARCH 1, 1968

| SNOW COURSE | | | CURRENT DATA | | | LAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | | | | (Inches) | |
| NO. | NAME | ELEVATION | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | WATER CONTENT | |
| | | | | | | LAST YEAR | AVERAGE |
| Gallatin Drainage | | | | | | | |
| 10D 4 | Arch Falls | 7350 | 2/29 | 46 | 15.0 | 12.2 | 9.5* |
| 11D09 | Bear Basin | 8150 | 2/27 | 72 | 24.9 | 19.7 | 16.3* |
| 10D15 | Bridger Bowl | 7250 | 2/28 | 87 | 32.2 | 28.3 | 22.0* |
| 10D15 | Bridger Bowl Pillow | 7250 | 2/28 | SP | 27.3 | 27.2 | - |
| 11E29 | Carrot Basin | 9000 | 2/20 | 90 | 29.2 | 37.4 | - |
| 11E29 | Carrot Basin Pillow | 9000 | 2/20 | SP | 21.8 | 30.6 | - |
| 10D04 | Devil's Slide | 8100 | 2/29 | 76 | 26.4 | 21.4 | 17.4 |
| 10D03 | Hood Meadow | 6600 | 2/29 | 34 | 11.3 | 9.8 | 7.6 |
| 10D13 | Lick Creek | 6860 | 2/29 | 38 | 11.4 | 11.5 | - |
| 10D13 | Lick Creek Pillow | 6860 | 2/29 | SP | 11.3 | 11.5 | - |
| 11D10 | Little Park | 7400 | 2/27 | 60 | 19.6 | 15.6 | 11.4* |
| 10D18 | Maynard Creek | 6210 | 2/28 | 52 | 19.8 | 15.7 | - |
| 10D18 | Maynard Creek Pillow | 6210 | 2/28 | SP | 12.5 | 11.4 | - |
| 10D01 | New World | 6700 | 2/28 | 39 | 13.2 | 11.9 | 8.6 |
| 10D10 | Sacajawea | 6550 | 2/28 | 49 | 16.4 | 13.4 | 11.1* |
| 10D16 | Shower Falls | 8100 | 2/29 | 84 | 30.7 | 24.3 | - |
| 10D16 | Shower Falls Pillow | 8100 | 2/29 | SP | 26.2 | 22.0 | - |
| 11D13 | Taylor Peaks | 8500 | No measurement | | | 22.8 | - |
| 11D13 | Taylor Peaks Pillow | 8500 | No measurement | | | 19.9 | - |
| 11E06 | Twenty-One Mile | 7150 | 2/25 | 54 | 16.3 | 21.5 | 15.8 |

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

# WATER SUPPLY FORECASTS

WATERSHED 9

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW | |
|---|---|---|---|---|---|---|
| | | | | | LAST YEAR* | AVERAGE |
| | JEFFERSON RIVER | | | | | |
| 0345 | Sappington (at)(12) | Apr-Sept | 1150 | 118 | | 974 |
| | WILLOW CREEK | | | | | |
| 0350 | Harrison (near) | Apr-Sept | 18.0 | 127 | | 14.2 |
| | MADISON RIVER | | | | | |
| 0375 | West Yellowstone (near) | Apr-Sept | 238 | 114 | 269 | 208 |
| | MADISON RIVER | | | | | |
| 0385 | Grayling (near)(13) | Apr-Sept | 500 | 119 | 586 | 420 |
| | MADISON RIVER | | | | | |
| 0410 | McAllister (near)(14) | Apr-Sept | 860 | 120 | 996 | 718 |
| | GALLATIN RIVER | | | | | |
| 0435 | Gateway (near) | Apr-Sept | 630 | 141 | | 447 |
| | BRIDGER CREEK | | | | | |
| 0485 | Bozeman (near) | Apr-Sept | 29.2 | 147 | | 19.9 |
| | HYALITE CREEK | | | | | |
| 0500 | Bozeman (near)(15) | Apr-Sept | 50.5 | 142 | | 35.6 |
| | GALLATIN RIVER | | | | | |
| 0525 | Logan (at) | Apr-Sept | 714 | 153 | | 467 |
| | MISSOURI RIVER | | | | | |
| 0545 | Toston (at)(16) | Apr-Sept | 2640 | 123 | | 2147 |

(12) Adjusted for storage in Clark Canyon Reservoir.
(13) Adjusted for storage in Hebgen Lake.
(14) Adjusted for storage in Hebgen and Ennis Lakes.
(15) Adjusted for storage in Middle Creek Reservoir.
(16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 0380 | Hebgen Lake | 377.5 | 237.0 | 170.4 | 179.1 |
| 0405 | Ennis Lake | 41.0 | 35.7 | 39.7 | 37.3 |
| 0495 | Middle Creek | 8.0 | 3.3 | 3.0 | 3.6 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# SNOW SURVEY DATA

AS OF MARCH 1, 1968

WATERSHED 9 (Cont.)

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT LAST YEAR | PAST RECORD: WATER CONTENT AVERAGE |
|---|---|---|---|---|---|---|---|
| Madison Drainage | | | | | | | |
| 11D07 | Call Road | 8050 | 2/28 | 39 | 11.4 | 10.0 | 8.0* |
| 10E03 | Canyon | 7750 | 2/28 | 53 | 14.7 | 16.5 | 13.1 |
| 11D08 | Clover Meadow | 8600 | 2/28 | 57 | 18.2 | 14.0 | 12.0* |
| 11D12 | Four Mile | 6900 | 2/29 | 27 | 7.9 | 6.8 | 7.0* |
| 11E25 | Freezeout Lake | 7200 | No measurement | | | 9.8 | - |
| 11E26 | Freezeout Mountain | 8250 | No measurement | | | 17.0 | - |
| 11E05 | Hebgen Dam | 6550 | 2/24 | 47 | 13.8 | 12.3 | 10.8 |
| 11D05 | Jack Creek | 7500 | 2/28 | 25 | 6.4 | 5.0 | 5.0* |
| 11E22 | Lake Creek | 6100 | 2/29 | 28 | 8.2 | 8.4 | - |
| 11E16 | Latham Springs | 7650 | 2/26 | 77 | 24.4 | 29.7 | 30.0* |
| 11E28 | Lion Mountain | 8760 | 2/27 | 59 | 16.8 | 16.0 | - |
| 11E28 | Lion Mountain Pillow | 8760 | 2/27 | SP | 15.6 | - | - |
| 11D11 | Lower Twin | 7900 | 2/29 | 61 | 20.8 | 16.6 | 16.0* |
| 11E31 | Madison Plateau | 7750 | 3/4 | 49 | 17.1 | - | - |
| 11E31 | Madison Plateau Pillow | 7750 | 3/4 | SP | 18.5 | - | - |
| 11E23 | Meridian Creek | 7000 | 2/29 | 33 | 8.8 | 8.8 | - |
| 11E02 | Norris Basin | 7500 | 2/27 | 44 | 9.2 | 12.4 | 9.0 |
| 11D03 | North Meadow | 7500 | 2/29 | 26 | 7.2 | 6.8 | 7.3 |
| 11E21 | Potomageton Park | 7150 | 2/29 | 49 | 15.8 | 16.1 | - |
| 11E20 | Sentinel Creek | 8300 | 2/29 | 73 | 24.4 | 26.1 | - |
| 11E24 | Tepee Creek | 8000 | 2/28 | 46 | 12.8 | 14.1 | - |
| 10E07 | Thumb Divide | 7900 | 2/27 | 54 | 16.5 | 22.3 | 20.0 |
| 11E08 | Valley View | 6500 | 2/28 | 51 | 16.9 | 22.2 | 13.2 |
| 11E07 | West Yellowstone | 6700 | 2/25 | 37 | 10.8 | 14.7 | 10.6 |
| 11E07 | West Yellowstone Pillow | 6700 | 2/25 | SP | 7.3 | 10.9 | - |
| 11E30 | Whiskey Creek | 6800 | 2/28 | 54 | 17.3 | 20.4 | - |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 10D11M | Battle Ridge | 6020 | 48 | 17.6 | 2/26 | 14.6 | 13.9 | 13.0 |
| 10D15M | Bridger Bowl | 7250 | 48 | 15.8 | 2/28 | 16.0 | 15.9 | - |
| 11D02M | College Site | 4856 | 54 | 14.5 | 3/1 | 12.9 | 12.5 | 9.7 |
| 10D13M | Lick Creek | 6860 | 48 | 18.8 | 2/29 | 18.0 | 18.6 | - |
| 10D04M | Red Bluff | 4800 | 40 | 4.7 | 3/1 | 2.4 | 2.5 | 2.3 |
| 11E06M | Twenty-One Mile | 7150 | 48 | 10.0 | 2/27 | 3.0 | 2.8 | 2.8 |
| 11E07M | West Yellowstone | 6700 | 48 | 6.5 | 2/28 | 2.2 | 2.5 | - |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY OUTLOOK
## JUDITH and MUSSELSHELL RIVER BASINS
## MONTANA

*as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation water supplies from natural streamflow is expected to be near to above average. The snow is dense. Moisture in the soil under the snow is near to above average.

Snow pack over the area averages about the same as a year ago and 130 percent average.

Streamflow is forecast above average but a little less than runoff last year.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 1185 SOUTH FORK MUSSELSHELL RIVER ABOVE MARTINSDALE | 97 | 49 | 68 | 54 | 79 | 55 | 27 | 25 | 47 | 56 | 26 | 57 | 32 | 11 | 50 | 49 | 45 | 56 | 74 | |
| STATION NO. 1098 SOUTH FORK JUDITH RIVER NEAR UTICA | | | | | | | | | | | | 13 | 9 | 3 | 14 | 12 | 10 | 19 | 17 | * |

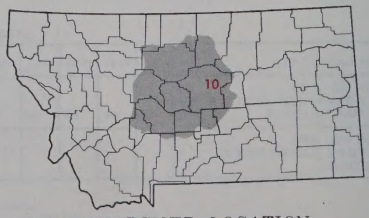
*Report prepared by*
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

*"The Conservation of Water begins with the Snow Survey"*

# JUDITH and MUSSELSHELL RIVER BASINS

## LEGEND

- Snow Pillow
- Precipitation Gage
- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S.W.C.D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary




WATERSHED LOCATION

# SNOW SURVEY DATA

WATERSHED 10

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT LAST YEAR | PAST RECORD: WATER CONTENT AVERAGE |
|---|---|---|---|---|---|---|---|
| 9C02 | Avalanche | 7100 | 3/1 | 67 | 25.0 | 24.0 | - |
| 10C05 | Bald Ridge | 7500 | 2/26 | 42 | 11.8 | 10.6 | 9.2* |
| 9C01 | Crystal Lake | 6100 | 3/1 | 42 | 15.0 | 14.4 | 10.5 |
| 10C09 | Deadman Creek | 6450 | 2/29 | 39 | 10.8 | 14.0 | - |
| 10C09 | Deadman Creek Pillow | 6450 | 2/29 | SP | 10.4 | - | - |
| 10C07 | Elk Peak | 8000 | 2/28 | 52 | 15.8 | 18.8 | 13.3* |
| 10C02 | Grasshopper | 7000 | 2/28 | 24 | 6.6 | 4.2 | 4.3 |
| 10C01 | Kings Hill | 7500 | 2/26 | 47 | 14.0 | 16.0 | 11.0 |
| 10C03 | Porcupine R. S. | 6500 | 2/26 | 25 | 7.6 | 6.2 | 6.3 |
| 9C03 | Rock Creek | 5600 | 3/1 | 33 | 10.4 | 10.1 | - |
| 9A01 | Rocky Boy | 4700 | 3/1 | 15 | 5.3 | 6.6 | 4.2 |
| 9A01 | Rocky Boy Pillow | 4700 | 3/1 | SP | 2.6 | - | - |
| 10C08 | South Fork Shields | 8100 | 2/26 | 70 | 22.6 | 23.4 | - |
| 10C06 | Spur Park | 8000 | 2/29 | 63 | 20.2 | 22.8 | 16.0* |
| 10C06 | Spur Park Pillow | 8000 | 2/29 | SP | 20.4 | 24.8 | - |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 10C01M | Kings Hill | 7420 | 48 | 11.8 | 2/29 | 6.2 | 4.9 | 7.3 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 10

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| | S. FK. JUDITH RIVER | | | | | |
| 1098 | Utica (near) | Apr-Sept | 17.2 | 153 | | 11.2 |
| | MISSOURI RIVER | | | | | |
| 1150 | Zortman (near)(21) | Apr-Sept | 4900 | 108 | | 4508 |
| | N. FK. MUSSELSHELL RIVER | | | | | |
| 1155 | Delpine (near) | Apr-Sept | 7.5 | 125 | | 6.0 |
| | S. FK. MUSSELSHELL RIVER | | | | | |
| 1185 | Martinsdale (above) | Apr-Sept | 60.0 | 123 | | 48.8 |

(21) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 1165 | Durand | 7.0 | 5.5 | - | 4.2 |
| 1190 | Martinsdale | 23.1 | 9.9 | - | 8.0 |
| 1225 | Deadman's Basin | 72.2 | 60.2 | - | 39.8 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK
## UPPER YELLOWSTONE RIVER BASIN
## MONTANA

*as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Late season irrigation supplies are expected to be near to a little above average. The snow is dense. Moisture in soils under the snow is near or above average.

The higher elevation snow pack is above average in all areas - except in the headwaters of Yellowstone National Park. Over the entire drainage the snow is five percent less than last year and 126 percent average.

Streamflow for the spring and summer is forecast to average less than last year and 10 to 20 percent above average.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION NO. 1935 SHIELDS RIVER AT CLYDE PARK | 217 | 113 | 116 | 94 | 162 | 130 | 65 | 72 | 97 | 77 | 50 | 106 | 63 | 36 | 86 | 99 | 101 | 133 | 162 | |
| STATION NO. 1925 YELLOWSTONE RIVER NEAR LIVINGSTON | 2480 | 2216 | 2427 | 2474 | 2417 | 1820 | 2232 | 1621 | 2689 | 2272 | 1630 | 2098 | 1527 | 1440 | 2562 | 2127 | 2128 | 2392 | 2982 | |
| STATION NO. 2075 CLARK FORK YELLOWSTONE RIVER AT CHANCE | 588 | 564 | 713 | 757 | 576 | 519 | 600 | 419 | 716 | 715 | 487 | 648 | 386 | 442 | 622 | 583 | 593 | 602 | 763 | |

Report prepared by
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# UPPER YELLOWSTONE RIVER BASIN

WATERSHED LOCATION

# SNOW SURVEY DATA

WATERSHED 11

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE | | | CURRENT DATA | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | WATER CONTENT | |
| NO. | NAME | ELEVATION | | | | LAST YEAR | AVERAGE |
| 10C05 | Bald Ridge | 7500 | 2/26 | 42 | 11.8 | 10.6 | 9.2* |
| 10D15 | Bridger Bowl | 7250 | 2/28 | 87 | 32.2 | 28.3 | 22.0* |
| 10D15 | Bridger Bowl Pillow | 7250 | 2/28 | SP | 27.3 | 27.2 | - |
| 9D01 | Camp Senia | 7890 | 3/4 | 27 | 7.5 | 7.6 | 4.8 |
| 10E03 | Canyon | 7750 | 2/28 | 53 | 14.7 | 16.5 | 13.1 |
| 9D07 | Cooke Station | 8150 | 2/29 | 60 | 18.2 | 20.5 | - |
| 10D05 | Crevice Mountain | 8400 | 2/28 | 43 | 13.5 | 10.0 | 7.5 |
| 10D04 | Devil's Slide | 8100 | 2/29 | 76 | 26.4 | 21.4 | 17.4 |
| 10E06 | East Entrance | 7000 | 2/25 | 28 | 6.1 | 9.0 | 10.4* |
| 9D06 | Fisher Creek | 9100 | 2/29 | 95 | 32.0 | 39.8 | - |
| 9D06 | Fisher Creek Pillow | 9100 | 2/29 | SP | 29.9 | 38.1 | - |
| 9D05 | Grizzly Peak | 8400 | 3/1 | 52 | 15.0 | 14.6 | 10.1* |
| 10D06 | Independence | 7850 | 3/1 | 59 | 18.8 | 22.7 | 15.6* |
| 10E04 | Lake Camp | 7850 | 2/28 | 31 | 6.7 | 11.2 | 9.0 |
| 9E01 | Lodgepole | 8200 | 2/29 | 35 | 8.6 | 11.4 | 8.6* |
| 10E01 | Lupine Creek | 7300 | 2/25 | 37 | 10.0 | 13.5 | 9.5 |
| 10D18 | Maynard Creek | 6210 | 2/28 | 52 | 19.8 | 15.7 | - |
| 10D18 | Maynard Creek Pillow | 6210 | 2/28 | SP | 12.5 | 11.4 | - |
| 10D12 | Monument Peak | 8800 | 3/1 | 75 | 26.2 | 29.2 | 18.1* |
| 10E02 | Norris Basin | 7500 | 2/27 | 44 | 9.2 | 12.4 | 9.0* |
| 10D07 | Northeast Entrance | 7400 | 2/27 | 33 | 9.0 | 11.0 | 7.5 |
| 10D07 | Northeast Entrance Pillow | 7350 | 2/27 | SP | 8.7 | 9.9 | - |
| 10C03 | Porcupine R. S. | 6500 | 2/26 | 25 | 7.6 | 6.2 | 6.3 |
| 10D10 | Sacajawea | 6550 | 2/28 | 49 | 16.4 | 13.4 | 11.1* |
| 10D16 | Shower Falls | 8100 | 2/29 | 84 | 30.7 | 24.3 | - |
| 10D16 | Shower Falls Pillow | 8100 | 2/29 | SP | 26.2 | 22.0 | - |
| 10C08 | South Fork Shields | 8100 | 2/26 | 70 | 22.6 | 23.4 | - |
| 10E05 | Sylvan Pass | 7100 | 2/25 | 42 | 10.8 | 12.0 | 12.6 |
| 10E07 | Thumb Divide | 7900 | 2/27 | 54 | 16.5 | 22.3 | 20.0 |
| 9D04 | Timberline Creek | 8850 | 3/4 | 50 | 15.0 | 17.8 | 10.9* |
| 9D02 | West Rosebud | 7500 | No Measurement | | | 15.0 | - |
| 9D08 | White Mill | 8700 | 2/29 | 76 | 23.4 | 29.5 | - |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION | | | SOIL PROFILE | | CURRENT DATA | | PAST RECORD | |
|---|---|---|---|---|---|---|---|---|
| | | | DEPTH | FIELD CAPACITY | DATE OF SURVEY | SOIL MOISTURE | LAST YEAR | **AVERAGE |
| NO. | NAME | ELEVATION | | | | | | |
| 10D11M | Battle Ridge | 6020 | 48 | 17.6 | 2/26 | 14.6 | 13.9 | 13.0 |
| 10D15M | Bridger Bowl | 7250 | 48 | 15.8 | 2/28 | 16.0 | 15.9 | - |
| 10D07M | Northeast Entrance | 7350 | 48 | 9.4 | 2/27 | 5.0 | 4.2 | 6.5 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 11

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW LAST YEAR* | MEASURED FLOW AVERAGE |
|---|---|---|---|---|---|---|
| 1915 | YELLOWSTONE RIVER Corwin Springs (at) | Apr-Sept | 1960 | 104 | 2370 | 1877 |
| 1925 | YELLOWSTONE RIVER Livingston (near) | Apr-Sept | 2330 | 109 | | 2127 |
| 1935 | SHIELDS RIVER Clyde Park (at) | Apr-Sept | 125 | 126 | | 99.0 |
| 2000 | BOULDER RIVER Big Timber (at) | Apr-Sept | 400 | 117 | | 343 |
| 2050 | STILLWATER RIVER Absarokee (near)(25) | Apr-Sept | 615 | 111 | | 552 |
| 2075 | CLARKS FORK RIVER Chance (at) | Apr-Sept | 638 | 109 | | 583 |
| 2085 | CLARKS FORK RIVER Edgar (at) | Apr-Sept | 660 | 108 | 837 | 609 |
| 2095 | ROCK CREEK Red Lodge (near) | Apr-Sept | 115 | 112 | 138 | 103 |
| 2145 | YELLOWSTONE RIVER Billings (at) | Apr-Sept | 4445 | 113 | | 3913 |

(25) Adjusted for storage in Mystic Lake.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 2040 | Mystic Lake | 20.8 | 10.4 | 7.7 | 7.8 |
| 2120 | Cooney | 27.5 | | 15.8 | 11.1 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK

## MILK RIVER BASIN

## MONTANA

*as of*

MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Data included in this report were obtained in cooperation with other Federal, State and private organizations

Water supplies from natural streamflow are expected to be below average; however, reservoir storage and diversions from the Saint Mary River will provide adequate irrigation supplies.

The snow is two-thirds to three-quarters average in all areas - except at higher elevations in the Bear Paw Mountains.

Soils are not frozen and almost all snow melt and rain is retained in the soil.

Inflow to Fresno Reservoir is expected to be about 80 percent average.

Reservoir storage is less than a year ago, but above average.

STREAMFLOW (APRIL THROUGH SEPTEMBER)

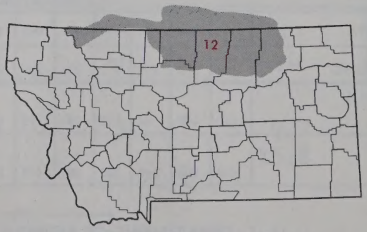
| STREAM GAGING STA. | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1948-62 Average | 1963 | 1964 | 1965 | 1966 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILK RIVER AT EASTERN CROSSING | 304 | 190 | 223 | 312 | 227 | 359 | 232 | 255 | 255 | 230 | 259 | 275 | 217 | 209 | 212 | 250 | 227 | 280 | 332 | |
| RESERVOIR STORAGE SUM FRESNO AND NELSON ON APRIL 1 | 110 | 108 | 24 | 116 | 182 | 115 | 124 | 124 | 132 | 160 | 111 | 129 | 184 | 74 | 53 | 116 | 92 | 67 | 118 | |
| SUM STREAMFLOW AND RESERVOIR STORAGE | 414 | 298 | 247 | 428 | 409 | 474 | 356 | 279 | 387 | 390 | 370 | 404 | 401 | 283 | 265 | 366 | 319 | 347 | 450 | |

Report prepared by
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
SNOW SURVEY AND WATER SUPPLY FORECASTING UNIT
BOX 98, BOZEMAN, MONTANA 59715

# MILK RIVER BASIN

## LEGEND

- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S. W. C. D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary




WATERSHED LOCATION

# SNOW SURVEY DATA

WATERSHED 12

AS OF MARCH 1, 1968

(Inches)

| SNOW COURSE NO. | NAME | ELEVATION | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SNOW DEPTH | CURRENT DATA: WATER CONTENT | PAST RECORD: WATER CONTENT: LAST YEAR | PAST RECORD: WATER CONTENT: AVERAGE |
|---|---|---|---|---|---|---|---|
| 9A02 | Bear Paw Ski Area | 5200 | 3/1 | 23 | 7.2 | - | - |
| 13A18 | Hudson Bay Divide | 5800 | 2/28 | 42 | 15.2 | 20.9 | 16.8* |
| 13A05 | Marias Pass | 5250 | 2/27 | 34 | 12.2 | 21.3 | 17.3 |
| 13A16 | Mineral Creek | 4000 | 2/26 | 38 | 12.0 | 23.0 | 19.8 |
| 9A01 | Rocky Boy | 4700 | 3/1 | 15 | 5.3 | 6.6 | 4.2 |
| 9A01 | Rocky Boy Pillow | 4700 | 3/1 | SP | 2.6 | - | - |
| | BOW RIVER - CANADA | | | | | | |
| 1 | Bow River | 5100 | 2/27 | 28 | 6.4 | 13.8 | - |
| 2 | Upper Pipestone | 5300 | 2/27 | 27 | 6.4 | 14.5 | - |
| 6 | Mirror Lake | 6600 | 2/28 | 35 | 9.3 | 16.2 | - |
| 8 | Chateau Lawn | 5700 | 2/28 | 35 | 8.0 | 14.1 | - |
| 10 | Mt. Eisenhower | 5000 | 2/27 | 15 | 3.3 | 6.8 | - |
| | CYPRESS HILLS | | | | | | |
| 10AA2 | Cress Day B | 3450 | 2/27 | 0 | 0.0 | 2.6 | 1.3* |
| 9AA1 | Cypress Park C | 4000 | 2/27 | 8 | 3.8 | 5.3 | 4.1* |
| 10AA1 | Elkwater Lake A | 4100 | 2/27 | 4 | 1.6 | 2.8 | 2.0* |
| 7AA1 | Val Marie D | 2700 | 2/28 | 0 | 0.0 | 2.4 | 1.1* |

SP - Snow pillow observation - water content only.

# SOIL MOISTURE DATA

AS OF MARCH 1, 1968

(Inches)

| SOIL MOISTURE STATION NO. | NAME | ELEVATION | SOIL PROFILE: DEPTH | SOIL PROFILE: FIELD CAPACITY | CURRENT DATA: DATE OF SURVEY | CURRENT DATA: SOIL MOISTURE | PAST RECORD: LAST YEAR | PAST RECORD: **AVERAGE |
|---|---|---|---|---|---|---|---|---|
| 13A05M | Marias Pass | 5350 | 54 | 6.5 | 3/1 | 5.6 | 5.5 | 5.3 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE **AVERAGE FOR PERIOD OF RECORD

# WATER SUPPLY FORECASTS

WATERSHED 12

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW | |
|---|---|---|---|---|---|---|
| | | | | | LAST YEAR* | AVERAGE |
| | ST. MARY RIVER | | | | | |
| 0175 | Babb (near)(30) | Apr-Sept | 415 | 85 | | 491 |
| | MILK RIVER | | | | | |
| 1350 | Eastern Crossing (at) | Mar-Sept | 220 | 81 | | 272 |

(30) Adjusted for storage in Lake Sherburne.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 0155 | Lake Sherburne | 66.1 | 27.8 | - | 21.6 |
| 1365 | Fresno | 127.2 | 67.9 | 84.4 | 58.6 |
| 1550 | Nelson | 66.8 | 39.6 | 49.0 | 35.4 |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

# WATER SUPPLY OUTLOOK
## BIG HORN RIVER BASIN
## AND YELLOWSTONE RIVER (Billings to Forsyth)
## MONTANA
## *as of*
MARCH 1, 1968

**UNITED STATES DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

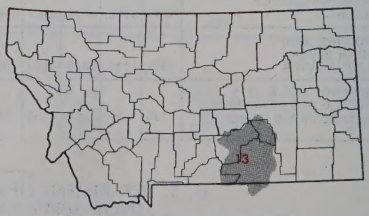
Data included in this report were obtained in cooperation with other Federal, State and private organizations

* * * \

# BIG HORN RIVER BASIN AND YELLOWSTONE RIVER (Billings to Forsyth)

## LEGEND

- Snow Survey Course
- Soil Moisture Station
- Snow Course and Soil Moisture Station
- Aerial Marker at Snow Course
- Stream Gaging Station
- Drainage
- S W C D. Boundary
- Watershed Boundary
- Highway
- Town
- County Boundary
- State Boundary




WATERSHED LOCATION

# SNOW SURVEY DATA

WATERSHED 13

**AS OF** MARCH 1, 1968

(Inches)

| SNOW COURSE | | | CURRENT DATA | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | | | | WATER CONTENT | |
| NO. | NAME | ELEVATION | DATE OF SURVEY | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE |
| 7E21 | Bald Mountain | 9600 | 2/26 | 71 | 20.6 | 19.6 | 16.9* |
| 7E20 | Beaver-Tongue Divide | 9200 | 2/26 | 69 | 20.2 | 21.3 | 15.6* |
| 7E33 | Burgess R. S. | 7900 | 2/27 | 36 | 9.2 | 8.9 | 6.8* |
| 7E31 | Five Springs Falls | 7500 | 2/28 | 33 | 8.8 | 8.2 | 5.3* |
| 7E30 | Medicine Wheel | 9000 | 2/26 | 59 | 16.4 | 16.2 | 13.3* |
| 7E11 | Sibley Lake | 8000 | 2/29 | 53 | 12.4 | 12.9 | 8.7* |
| 7E10 | Steamboat Point | 7500 | 2/29 | 36 | 8.4 | 8.3 | 6.3* |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

# WATER SUPPLY FORECASTS

WATERSHED 13

AS OF MARCH 1, 1968

(1000 Acre Feet)

| NO. | RIVER AND FORECAST POINT | FORECAST PERIOD | FORECAST THIS YEAR | PERCENT AVERAGE | MEASURED FLOW | |
|---|---|---|---|---|---|---|
| | | | | | LAST YEAR* | AVERAGE |
| | YELLOWSTONE RIVER | | | | | |
| 2145 | Billings (at) | Apr-Sept | 4445 | 113 | 5611 | 3913 |
| | BIG HORN RIVER | | | | | |
| 2870 | St. Xavier (near)(26) | Apr-Sept | 1500 | 90 | 2969 | 1677 |
| | LITTLE BIG HORN RIVER | | | | | |
| 2920 | Lodgegrass (near)(28) | Apr-Sept | 120 | 122 | | 98.4 |
| | YELLOWSTONE RIVER | | | | | |
| 3090 | Miles City (at)(27) | Apr-Sept | 6100 | 105 | | 5778 |

(26) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake and Yellowtail Reservoirs.
(27) Adjusted for storage in Buffalo Bill, Boysen and Yellowtail Reservoirs.
(28) Sum Little Big Horn below Pass Creek and Lodgegrass Creek near Wyola.

*PROVISIONAL DATA FURNISHED BY U. S. GEOLOGICAL SURVEY

# RESERVOIR STORAGE DATA

AS OF FEBRUARY 29, 1968

(1000 Acre Feet)

| NO. | RESERVOIR | USABLE CAPACITY | THIS YEAR | LAST YEAR | AVERAGE |
|---|---|---|---|---|---|
| 2864 | Yellowtail | 1,356.0 | 773.6 | 651.6 | - |

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).